

[Designation of Document] Claims

[Claim 1]

An information providing apparatus for a vehicle comprising an aural information providing unit to aurally notify various states of a vehicle, characterized by comprising:

a control unit that inputs traveling information relating to automatic traveling of the vehicle and operation information relating to the automatic traveling for a user through at least one of a vehicle information terminal and a multiplex communication input/output unit, and activates the aural information providing unit to notify at least one state of a vehicle state relating to the automatic traveling, a warning relating to the automatic traveling, a guidance of an operation relating to the automatic traveling, and an answerback of the operation relating to the automatic traveling.

[Claim 2]

The information providing apparatus for the vehicle as recited in claim 1, characterized in that there is provided a visual information providing unit to visually display the various states of the vehicle, and the control unit causes a display mode relating to notification content of the aural information providing unit to be displayed by the visual information providing unit.

[Claim 3]

The information providing apparatus for the vehicle as recited in claim 1, characterized in that the control unit uses the aural information providing unit to send a notification by voice.

[Claim 4]

The information providing apparatus for the vehicle as recited in claim 1, characterized in that the control unit uses the aural information providing unit to send a notification by a combination of voice and a sound effect.

[Claim 5]

The information providing apparatus for the vehicle as recited in claim 4, characterized in that the control unit activates the aural information providing unit to give the sound effect according to the various states of the guidance, the warning and the answerback, and changes the sound effect for each of the various states.

[Claim 6]

An information providing apparatus for a vehicle comprising an aural information providing unit to aurally notify various states of a vehicle, characterized in that the control unit inputs information of the vehicle through at least one of a vehicle information terminal and a multiplex communication input/output unit, activates the aural information providing unit for at least warning contents

in the information by a combination of a sound effect and a voice, and changes the sound effect for each of the warning contents.

[Claim 7]

The information providing apparatus for the vehicle as recited in claim 6, characterized in that the control unit repeatedly activates the aural information providing unit for the warning contents by the combination of the sound effect and the voice, and activates the aural information providing unit by only the sound effect in the repeated operation after a specified number of times.

[Claim 8]

An information providing apparatus for a vehicle comprising an aural information providing unit to aurally notify various states of a vehicle, characterized by comprising:

a control unit that inputs information of the vehicle through at least one of a vehicle information terminal and a multiplex communication input/output unit, and activates the aural information providing unit to notify content of at least one of an opening and an ending based on the information.

[Claim 9]

The information providing apparatus for the vehicle as recited in claim 8, characterized in that the control unit activates the aural information providing unit by mixing of

voice and music.

[Claim 10]

The information providing apparatus for the vehicle as recited in claim 6 or 8, characterized in that the control unit activates the visual information providing unit as well as the aural information providing unit.

[Claim 11]

An information providing apparatus for a vehicle comprising a visual information providing unit to visually display various states of a vehicle, an aural information providing unit to aurally notify the various states, and a control unit to control the visual information providing unit and the aural information providing unit, characterized in that

the control unit inputs information of the vehicle through at least one of a vehicle information terminal and a multiplex communication input/output unit, activates the aural information providing unit about at least information relating to warning content in the information, and activates the visual information providing unit as well as the aural information providing unit.

[Claim 12]

The information providing apparatus for the vehicle as recited in any one of claims 1, 6, 8 and 11, characterized in that there is provided a time information getting unit to get time information, and the control unit inputs the time

information, and notifies information corresponding to the time information by the aural information providing unit.

[Claim 13]

The information providing apparatus for the vehicle as recited in claim 12, characterized in that the time information getting unit includes an electric wave clock or a GPS.

[Claim 14]

The information providing apparatus for the vehicle as recited in any one of claims 1, 6, 8 and 11, characterized in that when activating the aural information providing unit, the control unit outputs an instruction signal to reduce output of an audio device mounted in the vehicle through at least one of the vehicle information terminal and the multiplex communication input/output terminal.

[Claim 15]

The information providing apparatus for the vehicle as recited in any one of claims 1, 6, 8 and 11, characterized in that when detecting plural conditions for aural notification through at least one of the vehicle information terminal and the multiplex communication input/output terminal, the control unit activates the aural information providing unit to sequentially notify respective information corresponding to the respective conditions in a previously determined descending order of priority.

[Claim 16]

The information providing apparatus for the vehicle as recited in 15, characterized in that when a signal indicating that information on a waiting list is cancelled is inputted through at least one of the vehicle information terminal and the multiplex communication input/output terminal at the time when the informations are sequentially notified in the descending order of priority, the control unit cancels a notification operation of the information corresponding to the signal.

[Claim 17]

The information providing apparatus for the vehicle as recited in claim 15 or 16, characterized in that when the plural informations are sequentially notified in accordance with the priority, in the case where the number of information not notified and being on a waiting list is larger than a specified number, the control unit leaves a specified number of information having high priority as they are and omits a notification operation of the other information.

[Claim 18]

The information providing apparatus for the vehicle as recited in any one of claims 15, 16 and 17, characterized in that when information requiring urgency is inputted through at least one of the vehicle information terminal and the multiplex communication input/output terminal at the time when the plural informations are sequentially notified in

accordance with the priority, the control unit forces the information requiring the urgency into the information not notified and being on a waiting list, and causes the information requiring the urgency to be notified with priority by the aural information providing unit.

[Claim 19]

The information providing apparatus for the vehicle as recited in any one of claims 1, 6, 8 and 11, characterized in that the control unit has a customize mode to register various settings of the aural information providing unit, and includes an input unit to determine contents of the various settings in the customize mode, and a storage unit to register the contents of the various settings.